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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/586,299

07/14/2006

Chikara Ohki

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EXAMINER

ROE, JESSEE RANDALL

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

09/26/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/586,299	Applicant(s) OHKI ET AL.	
	Examiner Jessee Roe	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 July 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) 1-4 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 5 and 6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>14 July 2006, 4 June 2007, 4 February 2008, 14 February 2008, 15 May 2008, 10 July 2008, 5 August 2008, and 14 August 2008</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of the Claims

Claims 5-6, drawn to a method of heat treating steel, are currently under examination and claims 1-4, drawn to a roller bearing, are withdrawn from further consideration pursuant 37 CFR 1.142(b), there being no allowable generic or linking claim. Applicant's election of claims 5-6 in the reply filed on 14 July 2008 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP §818.03(a)).

Information Disclosure Statement

Ohki (US 2003/0123769) was lined through on the Information Disclosure Statement submitted on 4 June 2007 because this reference was also listed on the Information Disclosure Statement submitted on 14 July 2006.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 5-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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With respect to the recitation "the steel having a position exhibiting HRC50 in a hardenability test (JISG0561) apart from a quenched end by at least 12.7 mm" as recited in lines 3-5 of claim 5, it is unclear whether this recitation indicates that the steel would have the hardness of HRC50 before carbonitriding or this hardness would be a result of carbonitriding. Also, from this recitation, it is unclear if the step of quenching is required or optional to achieve the recited hardness.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murakami et al. (US 5,413,643).

In regards to claim 5, Murakami et al. ('643) discloses subjecting a rolling bearing to a carbonitriding treatment at 870°C to 890°C wherein the rolling bearing comprises an inner ring, an outer ring, and rolling elements each composed of an alloy steel containing 0.10 to 1.00 weight percent carbon, 0.15 to 1.00 weight percent silicon, 0.20 to 1.50 weight percent manganese, and 0.50 to 3.00 weight percent chromium (abstract and Figs. 2(a), 2(b), and 2(c)). The Examiner notes that the rolling bearing composition and carbonitriding treatment temperatures disclosed by Murakami et al. ('643) overlap the claimed carbonitriding treatment of 810°C to 950°C and the claimed composition of

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the steel containing 0.8 to 1.5 weight percent carbon, 0.4 to 1.2 weight percent silicon, 0.8 to 1.5 weight percent manganese, and 0.5 to 1.8 weight percent chromium, which is prima facie evidence of obviousness. MPEP 2144.05 I. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have selected the claimed carbonitriding treatment temperatures and the steel alloy composition from the carbonitriding treatment temperatures and steel alloy composition disclosed by Murakami et al. ('643) because Murakami et al. ('643) discloses the same utility throughout the disclosed ranges.

In view of the indefiniteness of the recitation "the steel having a position exhibiting HRC50 in a hardenability test (JISG0561) apart from a quenched end by at least 12.7 mm", the Examiner asserts that the steel of Murakami et al. ('643) would have the recited hardness because Murakami et al. ('643) recites the same or a substantially similar composition in addition to the same carbonitriding process. MPEP 2112.01 I.

With respect to the recitation "subsequently cooling the part to a temperature range lower than a transformation point A1 of said steel; and subsequently heating the part again to a quenching temperature range not lower than the transformation point A1 and lower than a temperature used for said carbonitriding or nitriding", Murakami et al. ('643) discloses quenching after heating to 870°C to 890°C and then heating to 820°C to 840°C (Figs. 2(a), 2(b), and 2(c)).

With respect to the recitation "wherein the quenching temperature range not lower than said transformation point A1 and lower than the temperature used for said carburizing or nitriding is 750-810°C" of claim 6, Murakami et al. ('643) discloses heating

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to 820 to 840°C before quenching. The Examiner notes that the difference between the claimed process and the process disclosed by Murakami et al. ('643) would be a difference in the quenching temperature. Therefore, it is incumbent upon the Applicant to establish the criticality of that difference. *Ex parte Khusid, Bezgodova, and Ruben* 174 USPQ 59.

Claims 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohki (US 2003/0123769).

In regards to claim 5, Ohki ('769) discloses subjecting steel for a bearing part to a carbonitriding treatment at 845°C wherein the steel comprises 0.6 to 1.2 weight percent carbon, 0.5 to 1.1 weight percent silicon, 0.3 to 1.5 weight percent manganese, and not greater than 2 weight percent chromium (abstract, Fig. 2, [0020], and [0025]). The Examiner notes that the rolling bearing composition and carbonitriding treatment temperatures disclosed by Ohki ('769) overlap the claimed carbonitriding treatment of 810°C to 950°C and the claimed composition of the steel containing 0.8 to 1.5 weight percent carbon, 0.4 to 1.2 weight percent silicon, 0.8 to 1.5 weight percent manganese, and 0.5 to 1.8 weight percent chromium, which is prima facie evidence of obviousness. MPEP 2144.05 I. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have selected the claimed carbonitriding treatment temperatures and the steel alloy composition from the carbonitriding treatment temperatures and steel alloy composition disclosed by Ohki ('769) because Ohki ('769) discloses the same utility throughout the disclosed ranges.

In view of the indefiniteness of the recitation "the steel having a position exhibiting HRC50 in a hardenability test (JISG0561) apart from a quenched end by at least 12.7 mm", the Examiner asserts that the steel of Ohki ('769) would have the recited hardness because Ohki ('769) recites the same or a substantially similar composition in addition to the same carbonitriding process. MPEP 2112.01 I.

With respect to the recitation "subsequently cooling the part to a temperature range lower than a transformation point A1 of said steel; and subsequently heating the part again to a quenching temperature range not lower than the transformation point A1 and lower than a temperature used for said carbonitriding or nitriding", Ohki ('769) discloses oil cooling (quenching) after heating to 845°C and then heating to 800°C (Fig. 2).

In regards to claim 6, Ohki ('769) discloses heating to 800°C prior to oil cooling (quenching), which would be within the range of 750-810°C as instantly claimed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jessee Roe whose telephone number is (571) 272-5938. The examiner can normally be reached on Monday-Friday 7:30 AM - 4:30 PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Roy V. King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JR

/John P. Sheehan/
Primary Examiner, Art Unit 1793

Application Number 	Application/Control No.	Applicant(s)/Patent under Reexamination	
	10/586,299	OHKI ET AL.	
	Examiner	Art Unit	
	Jessee Roe	1793	